CLAIMS

What is claimed is:

1. A translator for insertion between a master and one or more slave devices on a one-wire bus comprising:

a primary one-wire bus, said primary one-wire bus in digital electrical communication with the master;

a secondary one-wire bus, said secondary one-wire bus in digital electronic communication with the one or more slave devices; and

a data direction switch for directing the flow of data between said primary one-wire bus and said secondary one-wire bus.

2. The translator of claim 1 wherein said secondary one-wire bus is a first secondary one-wire bus and the translator further comprises a second secondary one-wire bus.

3. The translator of claim 1 further comprising a command parser for decoding a plurality of commands from the master.

4. The translator of claim 3 further comprising data memory wherein data stored in said memory is output on said primary bus in response to at least one command of said plurality of commands.

5. An enhanced one-wire bus for the half duplex transmission of serial data between a master and a slave comprising:

a translator having a primary interface and a secondary interface;

a primary one wire bus in electrical communication with said primary interface and with the master;

a secondary one wire bus in electrical communication with said secondary interface and the slave device,

wherein,

when said translator is in a first operational mode, said primary interface is in electrical communication with said secondary interface such that serial data is communicated from the master to the slave,

when said translator is in a second operational mode, said primary interface is in electrical communication with said secondary interface such that serial data is communicated from the slave to the master, and

when said translator is in a third operational mode, serial data is not communicated between the master and the slave.

6. A method for inserting known data into a serial data stream between a master and a slave device on a one-wire bus including the steps of:

(a) providing a translator having a primary one-wire bus in electrical communication with the master and a secondary one-wire bus in electrical communication with the slave device, said translator providing interruptible communication between the master and the slave device;

(b) decoding a set of commands sent by the master on the primary one-wire bus;

(c) in response to one or more commands of said set of commands, interrupting communication between the master and the slave device; and

(d) sending known serial data to either the master or the slave device.

7. A method for inserting known data into a data stream between a master and a slave device on a one-wire bus including the steps of:

(a) providing a primary one-wire bus in electrical communication with the master;

(b) providing a secondary one-wire bus in electrical communication with the slave;

(c) waiting for a reset pulse on said primary one-wire bus;

(d) receiving a ROM command on said primary one-wire bus;

(e) determining if said ROM command is a read command, a match command, a search command, or a skip command;

(f) if said ROM command is a read command, performing the steps of:

(i) transmitting a predetermined identifier on said primary one-wire bus; and

(ii) returning to step (c)

(g) if said ROM command is a match command performing the steps of:

(i) receiving an identifier on said one-wire bus;

(ii) comparing said received identifier to a predetermined identifier; and

(iii) proceeding to step (j)

(h) if said ROM command is a search command performing the steps of:

(i) transmitting the first bit of a predetermined identifier having a plurality of bits on said primary one-wire bus;

(ii) transmitting the complement of said first bit of said predetermined identifier on said primary one-wire bus;

(iii) receiving a bit on said primary one-wire bus; and

(iv) comparing said received bit to said first bit of said predetermined identifier;

(v) repeating steps (h)(i) through (h)(iv) for each bit of said plurality of bits; and

(vi) proceeding to step (j);

(i) if said ROM command is a skip command proceeding to step (j);

(j) receiving a memory command from said primary one-wire bus;

(k) receiving a memory address from said primary one-wire bus;

(l) if said memory command is a read command performing the steps of:

(i) receiving slave data on said secondary one-wire bus;

(ii) transmitting said slave data on said primary one-wire bus;

(iii) repeating steps (l)(i) - (l)(ii) until a reset pulse is received on said primary one-wire bus;

(iii) returning to step (d);

(m) if said memory command is a write command, performing the steps of:

(i) receiving slave data on said primary one-wire bus;

(ii) transmitting said slave data on said secondary one-wire bus;

(iii) receiving verification data on said secondary one-wire bus;

(iv) transmitting said verification data on said primary one-wire bus;

(v) receiving a write pulse on said primary one-wire bus;

(vi) transmitting a write pulse on said secondary one-wire bus;

(vii) receiving said slave data on said secondary one-wire bus;

(viii) transmitting said slave data on said primary one-wire bus;

(ix) repeating steps (m)(i) - (m)(viii) until a reset pulse is received on said primary one-wire bus;

(x) returning to step (m)(d).